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EXAMINER	
BANH, DAVID H	
ART UNIT	PAPER NUMBER
4193	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,122	VOSAHLO, JINDRICH	
	Examiner	Art Unit	
	DAVID H. BANH	4193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,10,12,14,15,25,28,29,33,36,38-40,42,47,50,68,76,78,81 and 82* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *1/3/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/3/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,3-6,10,12,14,15,25,28,29,33,36,38-40,42,47,50,68,76,78,81 and 82.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 5, 6, 25, 38-40 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin (US Patent 4,748,453).

For claim 1, Lin teaches a method of printing an area of a substrate with a plurality of printing passes (column 4, lines 35-37) using curable ink (column 4, lines 15 and 23-24, the ink dries quickly, begins to cure in 0.1-0.2 seconds), the method comprising depositing a first pass of ink on the area (column 4, lines 39-42), partially curing the ink deposited in the first pass (column 4, lines 23-24, ink will take 0.2 seconds to become tacky) such that the exposed surface of the partially cured ink is in non-solidified form (column 4, line 24, ink is tacky), depositing a second pass of ink on the area (column 4, line 44) and finally fully curing the ink on the area (column 4, lines 15-20, the ink dries rapidly and naturally).

For claim 3, Lin teaches that the exposed surface of the partially cured ink is in substantially liquid or gel form (column 4, line 24, ink is tacky).

For claim 5, Lin teaches that the partial curing effects at least partial curing of the ink adjacent the substrate (column 4, lines 24-34, the ink is tacky and not flowable).

For claim 6, the partial curing step effects at least partial curing of the ink (column 4, line 24, ink is tacky), such that the partially cured ink is stable after a period of minutes (column 4, line 23, ink dries significantly in a matter of seconds).

For claim 25, the partially cured ink can be displaced by rubbing (column 4, line 24, tacky ink can be smeared by rubbing)

For claim 38, Lin teaches an apparatus for an inkjet device (column 3, lines 7-9, Figure 1, relates an ink jet printer) for printing an area of a substrate in a plurality of passes (column 4, lines 35-37) using curable ink (column 4, lines 15 and 23-23), comprising a printhead (column 3, lines 51-53, head cartridge , Figure 2, label 26) arranged to deposit a first pass of ink on the area (column 4, lines 39-42), a means for partially curing the ink deposited (column 4, lines 23-24, natural drying in 0.1 to 0.2 seconds), a printhead (column 3, lines 51-53, as above) for depositing a second pass of ink on the area (column 4, line 44) and finally fully curing the ink on the area (column 4, lines 15-20, the ink naturally dies and cures).

For claim 39, the means for partially curing is adapted to partially cure the ink such that an exposed surface of the partially cured ink is in a non-solidified form (column 4, lines 15-20, the natural curing leaves the ink tacky).

For claim 40, the means for partially curing is adapted to cure the ink such that the exposed surface is in gel or liquid form (column 4, lines 15-20, the ink is left tacky).

For claim 42, the means for partially curing ink is adapted to partially cure the ink adjacent the substrate (column 4, lines 15-20, the curing means can fully cure the ink and cures the ink adjacent to the substrate).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 4,748,453) in view of Hetzer (US Patent 5,883,648A).

Lin teaches all of the limitations of claim 4 as found in claim 1. Lin does not teach the exposed surface is prevented by solidifying by oxygen inhibition. However, Hetzer teaches oxygen inhibition to prevent ink from solidifying, by providing a small low pressure approximate vacuum that becomes readily moistened (column 1, lines 60-67, column 2, lines 1-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a vacuum about the ink to prevent it from solidifying for the purpose of allowing the ink to interact with the ink from subsequent printing passes.

5. Claims 10, 12, 14 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 4,748,453) in view of Roth (US Patent 6,354,700B1).

For claim 10, Lin teaches all of the limitations found in the parent claim. It does not teach that there are two devices for curing the ink wherein the first device is in a separate location from the second device. However, Roth teaches two devices for curing the ink (Figure 1, labels 51 and 56). The first device (Figure 1, label 51) is capable of partially curing the ink and is separate (see Figure 1) from the second device (Figure 1, label 56) which is capable of fully curing the ink. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the radiation devices for drying taught by Roth to the method taught by Lin for the purposes of facilitating partial and full curing and for penetrating colored layers of ink.

For claim 12, Roth teaches that the ink is radiation curable, and preferably UV curable, as UV radiation is often used for curing (column 2, lines 13-15, also lines 53-55).

For claim 14, Roth teaches the use of ultraviolet or visible light for curing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use light of wavelength between 385 nm and 400 nm for the purpose of utilizing the lowest energy wavelengths capable of penetrating all colors.

For claim 47, Roth teaches that the means for partially curing is separate from the means for fully curing the ink.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 4,748,453) in view of Lutz (US PG Pub 2002/0009553A1). Lin teaches all of the limitations of claim 15 as found in claim 1. Lin does not teach that the fully curing step comprises providing an inerting environment. However, Lutz teaches that a fully curing step that comprises providing an inerting environment (page 11, paragraph 101). It would be obvious to one of ordinary skill in the art at the time the invention was made to use an inerting environment to cure the ink for the purpose of not having it run or smear.

7. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 4,748,453) in view of Nakagawa (US PG Pub 2002/0070997A1).

For claim 28, Lin teaches all of the limitations found in parent claim 1. Lin does not teach that the ink of the first pass is substantially wetted by the ink of the second pass. However, Nakagawa teaches the ink of the first pass is substantially wetted by the ink of the second pass (page 7, paragraph 96).

For claim 29, Lin teaches the depositing of a first pass of ink on the area (column 4, lines 39-42). Lin teaches the substantial immobilizing of the ink on the area (column 4, lines 23-24, ink will take 0.2 seconds to become tacky). Lin does not teach that the immobilized ink is substantially wetted by ink of a subsequent pass. However, Nakagawa teaches the ink of the first pass is wetted by the ink of the second pass (page 7, paragraph 96).

8. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 4,748,453) in view of Cleary (US Patent 6,457,823B1) and Hu (US Patent 6,447,112B1).

Lin teaches all of the elements of claim 33 as found in claim 1. Lin does not teach that the partial curing is effected by a first radiation source that is arranged to move with the printhead. However, Cleary teaches that the radiation source for curing the ink is mounted on the printhead and thus moves with the printhead (column 1, lines 35-40). It further teaches that a radiation source for partially curing the ink is better suited for being mounted on the print head because such a source does not have to emit as much energy and may thus be smaller (column 1, lines 50-60).

Lin does not teach a second source for fully curing the ink that is arranged to move relative to the printhead. However Hu teaches a radiation source for fully curing the ink (column 1, line 67). Hu further teaches that the radiation source for fully curing the ink is adapted to be relatively movable (column 1, lines 62-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the radiation sources taught by Hu and Cleary with the inkjet printing device taught by Lin for the purpose of being able to cure the ink more quickly and regardless of where the ink falls relative to the printheads and radiation sources.

9. Claims 36 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 4,748, 453) in view of Nakamura (US Patent 6,129,464).

Lin teaches all of the limitations of claim 36 as found in claim 1. Lin does not teach a light emitting diode emitting radiation toward the ink. However, Nakamura teaches a light emitting diode emitting radiation toward the ink (column 4, lines 45-65). It have been obvious to one of ordinary skill in the art at the time the invention was made to add a light emitting diode to emit radiation onto the ink to cure parts of it for the purpose of having the ink dry before it leaves the printer to prevent smearing.

Lin teaches all of the limitations of claim 68 as found in claim 38. Lin does not teach a light emitting diode emitting radiation toward the ink. However, Nakamura teaches a light emitting diode emitting radiation toward the ink (column 4, lines 45-65). It have been obvious to one of ordinary skill in the art at the time the invention was made to add a light emitting diode to emit radiation onto the ink to cure parts of it for the purpose of having the ink dry before it leaves the printer to prevent smearing.

10. Claim 76 is rejected under Hu (US Patent 6,447,112B1) in view of Cleary (US Patent 6,457,823B1).

Hu teaches an inkjet device for printing on an area of a substrate using ink comprising a printer carriage having one or more inkjet printheads (column 1, lines 29-32) and a radiation source for at least partially curing ink emitted by one or more printheads (column 1, lines 37-38). Hu further teaches a radiation sources that moves independently of the printhead (column 1, lines 62-65) and completely cures the radiation curable ink (column 1, line 67). Hu does not teach that the radiation source for partially curing the ink is arranged to move with one

or more printheads. However, Cleary teaches that the radiation source for curing the ink is mounted on the printhead and thus moves with the printhead (column 1, lines 35-40). It further teaches that a radiation source for partially curing the ink is better suited for being mounted on the print head because such a source does not have to emit as much energy and may thus be smaller (column 1, lines 50-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to place a partially curing radiation source on the printhead as taught by Cleary into the inkjet device taught by Hu for the purpose of partially curing the ink without burdening the print head unduly with weight and slowing the rate of printing.

11. Claim 78 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hu (US Patent 6,447,112B1) and Cleary (US Patent 6,457,823B1) as applied to claim 76 above, and further in view of Stowe (US Patent 6,454,405B1).
The combination of Hu and Cleary teaches all of the limitations found in parent claim 76. Hu further teaches that the radiation source for fully curing the ink is adapted to be relatively movable with respect to the beam (column 2, lines 20-25). The combination does not teach that the inkjet device comprises a beam movable with respect to the area of the substrate and a printer carriage adapted to move along the beam as well as with the beam. However, Stowe teaches a beam (column 1, lines 47-50, "guide") that is movable with respect to the area of the substrate as the substrate will move through the inkjet printer and a printing carried (column 1, lines 45-46, "print head and housing") that moves along the guide (column 1, lines 55-60). It would be obvious to one ordinary skill in the art

at the time the invention was made to add the beam as taught by Stowe to the inkjet device taught by Hu and Cleary for the purpose of moving the printhead along for the purpose of printing on the substrate.

12. Claim 81 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 4,748,453) in view of Nakai (US Patent 4,910,116).

Lin teaches all of the elements of claim 81 as recited in claim 1. Lin does not teach that the amount of partial curing is adjusted based on the print speed. However, Nakai teaches that the partial curing is adjusted based on the print speed in that fast drying ink is used, increasing the amount of curing (page 12, paragraph 217). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to varying the partial curing for the purpose of obtaining complete drying even when the print speed is increased to prevent smearing.

13. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 4,748,453) and Nakai (US Patent 4,910,116) as applied to claim 81 above, and further in view of MacQueen (US PG Pub 2003/0129369A1).

Lin and Nakai teach all of the limitations as found in claim 81. The combination does not teach that the partial curing is varied so as to vary the level of gloss of the printed ink. However, MacQueen teaches a change in the curing to affect the gloss of the ink (page 13, paragraph 104). It would be obvious combine the changes in partial curing taught by MacQueen to change the level of the gloss of the ink for the purpose of producing more even and seemly printed images.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID H. BANH whose telephone number is (571)270-3851. The examiner can normally be reached on M-Th 7:30AM-5PM Alt. Fri 7:30AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long T. Nguyen can be reached on 571-272-1753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DHB

/Long Nguyen/
Supervisory Patent Examiner
Art Unit 4193